3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-Atg10
produced in rabbit, affinity isolated antibody

Catalog Number **A9356**

Product Description

Anti-Atg10 is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 1-16 of human Atg10 (GeneID: 83734), conjugated to KLH. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Atg10 recognizes human Atg10. The antibody may be used in various immunochemical techniques including immunoblotting (~ 27 kDa) and immuno-precipitation. Detection of the Atg10 band by immunoblotting is specifically inhibited by the immunizing peptide.

Macroautophagy, usually referred to as autophagy, is a major pathway for bulk degradation of cytoplasmic constituents and organelles. In this process, portions of the cytoplasm are sequestered into double membrane vesicles, the autophagosomes, and subsequently delivered to the lysosome for degradation and recycling.[1, 2] Although autophagy is a constitutive cellular event, it is enhanced under certain conditions such as starvation, hormonal stimulation and drug treatments.[3] Autophagy is required for normal turnover of cellular components during starvation. It plays an essential role in cellular differentiation, cell death and aging. Defective autophagy may contribute to certain human diseases such as cancer, neurodegenerative diseases, muscular disorders and pathogen infections.[4, 5] Autophagy is an evolutionarily conserved pathway seen in all eukaryotic cells.[1] At least 16 ATG genes required for autophagosome formation have been identified in yeast by genetic screens. For many of these genes, related homologs have been identified in mammals.[6]

Atg10 is an E2-like enzyme essential for autophagy.[7, 8] Two ubiquitin-like conjugation systems are involved in autophagosome formation: Atg12 and LC3 (a mammalian Atg8 homologue) conjugation systems. The ubiquitin-like proteins, Atg12 and LC3, are activated by Atg7, an E1-like enzyme essential for both conjugation systems. Atg12 is then transferred to the E2-like enzyme Atg10 and conjugated to Atg5, whereas LC3 is transferred to another E2-like enzyme, Atg3, and conjugated to phosphatidylethanolamine.[9, 10] Atg10 is essential for Atg12 conjugation, and facilitates the modification of the soluble form of LC3 to the membrane-bound form.[8]

Reagent

Supplied as a solution in 0.01 M PBS, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 3-6 μg/mL is recommended using a whole extract of HEK-293T cells expressing human Atg10.

Immunoprecipitation: a working antibody amount of 5-10 μg is recommended using a whole extract of HEK-293T cells expressing human Atg10.

Note: In order to obtain the best results in various techniques and preparations, we recommend determining optimal working concentration by titration.

References

1. Klionsky, D.J., and Emr, S.D., *Science*, **290**, 1717-1721 (2000).
2. Kuma, A., et al., *Nature*, **432**, 1032-1036 (2004).
3. Kabeya, Y., et al., *EMBO J.*, **19**, 5720-5728 (2000).
4. Reggiori, F., and Klionsky, D.J., *Eukaryotic Cell*, **1**, 11-21 (2002).
5. Shintani, T., and Klionsky, D.J., *Science*, **306**, 990-995 (2004).
6. Klionsky, D.J., et al., *Develop. Cell*, **5**, 539-545 (2003).
7. Shintani, T., et al., *EMBO J.*, **18**, 5234-5241 (1999).
8. Nemoto, T., et al., *J. Biol. Chem.*, **278**, 39517-39526 (2003).
9. Hanada, T., and Yoshinori, O., *Autophagy*, **1**, 110-118 (2005).
10. Mizushima, N., et al., *J. Biol. Chem.*, **273**, 33889-33892 (1998).

ST,KAA,PHC 05/08-1